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List of Commenters

Note: Each comment letter or transcript listed below appears first, followed by the corresponding responses.

Letter 1 from Verne Kucy, the Corporation of Delta
Letter 2 from Dr. Mary Lynn Derrington, Superintendent Blaine School District
Letter 3 from Sam Crawford, Whatcom County Council Member
Letter 4 from W. Bannerman, Resident
Letter 5 from S. Gilfillan, Resident
Letter 6 from Doug Caldwell, Isca Management Ltd.
Letter 7 from H. J. Schneider, Blaine Resident
Letter 8 from Todd L. Harrison, Washington State Department of Transportation
Letter 9 from Dale E. Brandland, Washington State Senate
Letter 10 from Kelli Linville, Washington State Representative
Letter 11 from Gary E. Russell and others, Whatcom County Fire District No. 7
Letter 12 from Arne R. Cleveland, Blaine Resident
Letter 13 from Bill Henshaw, Bellingham Resident
Letter 14 from James Randles, Northwest Air Pollution Authority
Letter 15 from Rob Pochert, Bellingham Whatcom Economic Development Council
Letter 16 from Preston A. Sleeper, U.S. Department of the Interior
Letter 17 from Gerald Steel, Attorney representing Washington State Association of Plumbers and Steamfitters
Letter 18 from Karen Kloempken, Washington Department of Fish and Wildlife
Letter 19 from Trina Blake, NW Energy Coalition
Letter 20 from Mike Torpey, BP Cherry Point Refinery
Letter 21 from Susan Meyer, Washington Department of Ecology
Letter 22 from M. D. Nassichuk, Environment Canada
Letter 23 from Mary C. Barrett, Senior Assistant Attorney General
Letter 24 from Ken Cameron, Greater Vancouver Regional District
Letter 25 from David M. Grant, Whatcom County
Letter 26 from Steve and Helene Irving, Ferndale Residents

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Letter 27 from Judith Leckrone Lee, U.S. Environmental Protection Agency

Letter 28 from Cathy Cleveland, Blaine Resident

Letter 29 from Kathy Berg, Birch Bay Resident

Letter 30 from Tom Pratum, Bellingham Resident

Letter 31 from Doralee Booth, Birch Bay Resident

Letter 32 from John Williams, Williams Research

Letter 33 from Cathy Cleveland, Birch Bay Resident

Transcript of Public Hearing Held October 1, 2003, in Blaine, Washington. Incorporates the following commenters:

1. Mark Lawrence
2. Rob Pochert
3. Dan Newell
4. Wyman Bannerman
5. Fred Schuhmacher
6. Sam Crawford
7. Frank Eventoff
8. Sandra Abernathy
9. Wendy Steffensen
10. Alan Van Hook
11. Cathy Cleveland

ACRONYMS AND ABBREVIATIONS

$\mu\text{g}/\text{m}^3$	micrograms per cubic meter
AASHTO	American Association of State Highway Transportation Officials
ACC	air-cooled condensing
ADT	average daily traffic
AHPA	Archaeological and Historic Preservation Act
AIHA	American Industrial Hygiene Association
ANSI	American National Standards Institute
APE	Area of Potential Effect
Applicant	BP West Coast Products, LLC
AQI	air quality index
AQRV	air quality related values
ASC	Application for Site Certification
ASILs	Acceptable Source Impact Levels
B&O	business and occupation
BACT	Best Available Control Technology
BE	Biological Evaluation
BFW	boiler feedwater
BMPs	Best Management Practices
BNSF	Burlington Northern Santa Fe
BOD	Biochemical Oxygen Demand
Bonneville	Bonneville Power Administration
BP	BP West Coast Products, LLC
Btu/kWh	British thermal units per kilowatt hour
CAA	Clean Air Act
CB	citizens band
CEQ	Council on Environmental Quality
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CFR	Code of Federal Regulations
cfs	cubic feet per second
CGTs	combustion gas turbine generators
CMA	Compensatory Mitigation Area
CO	carbon monoxide
COD	Chemical Oxygen Demand
Corps	U.S. Army Corps of Engineers
CPR	cardiopulmonary resuscitation
CRGNSA	Columbia River Gorge National Scenic Area
dB	decibels
dbh	diameter at breast height
DOT	U.S. Department of Transportation
Dth/d	decatherms per day
Ecology	Washington Department of Ecology
EFSEC	Washington State Energy Facility Site Evaluation Council
EHSP	Environmental, Health, and Safety Program
EIS	Environmental Impact Statement
EMF	electromagnetic fields
EMI	electromagnetic interference
EOs	Executive Orders

EPA	U.S. Environmental Protection Agency
EPC	Engineering, Procurement and Construction
EPP	Emergency Preparedness Plan
ERC	emission reduction credit
ERPG	Emergency Response Planning Guidelines
ESA	Endangered Species Act
ESU	Evolutionarily Significant Unit
FAA	Federal Aviation Administration
FCRTS	Federal Columbia River Transmission System
FEMA	Federal Emergency Management Agency
Ferndale pipeline	Arco Western Natural Gas Pipeline
FERO	Fire Emergency Response Operations
FM	frequency modulated
FPPA	Farmland Protection Policies Act
GLO	General Land Office
gpm	gallons per minute
GPT	Gateway Pacific Terminal
GSX	Georgia Strait Crossing
GTN	Gas Transmission, Northwest
GVRD	Greater Vancouver Regional District
H ₂ SO ₄	sulfuric acid mist
HAP	hazardous air pollutants
HHV	Higher Heat Value
HII	Heavy Impact Industrial
horsepower	hp
HRSGs	heat recovery steam generators
IPCC	Intergovernmental Panel on Climate Change
ISC	Industrial Source Complex
kHz	kilohertz
kpph	thousand pounds per hour
kV	kilovolt
kV/m	kilovolts per meter
kW	kilowatt
L&I	Washington Department of Labor and Industries
lbs/kWhr	pounds per kilowatt-hour
LII	Light Impact Industrial
LOS	level-of-service
MACT	Maximum Available Control Technology
MBtu	million British thermal units
MDth/day	million decatherms per day
mG	milligauss
MMlb	million pounds
MMTCE	million metric tons of carbon equivalents
MP	milepost
MSDS	Material Safety Data Sheets
MSL	mean sea level
MVA	million volt amp
MW	megawatt
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act

NESHAPS	National Emission Standards for Hazardous Air Pollutants
NHPA	National Historic Preservation Act
NO ₂	nitrogen dioxide
NOAA	National Oceanic and Atmospheric Administration
NO _x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NSPS	New Source Performance Standards
NSR	New Source Review
NWAPA	Northwest Air Pollution Authority
NWPCC	Northwest Power and Conservation Council
O ₃	ozone
OAHP	Office of Archaeology and Historic Preservation
OSHA	Occupational Safety and Health Administration
OTED	Washington State Office of Trade and Economic Development
Pb	lead
PEM	palustrine emergent
PFO	palustrine forested
PFOC	seasonally flooded palustrine forested
PG&E	PG&E National Energy Group
PGA	peak ground acceleration
PM ₁₀	particulate matter less than 10 micrometers in size
PM _{2.5}	particulate matter less than 2.5 micrometers in size
ppb	parts per billion
ppm	parts per million
ppmdv	parts per million volume dry
PSD	Prevention of Significant Deterioration
PSE	Puget Sound Energy
psi	pounds per square inch
psia	pounds per square inch absolute
psig	pounds per square inch gauge
PSS	Potential Site Study
PSS	palustrine scrub-shrub
PSSA	temporarily flooded palustrine scrub-scrub
PUD	Whatcom County Public Utility District No. 1
RAS	Remedial Action Scheme
RCW	Revised Code of Washington
RI	Radio Interference
RMP	Risk Management Plan
ROD	Record of Decision
ROW	right-of-way
SCF	standard cubic feet
SCR	selective catalytic reduction
SE2	Sumas Energy 2 Generation Facility
SEPA	State Environmental Policy Act
SILs	Significant Impact Levels
SO ₂	sulfur dioxide
SPCC	Spill Prevention Control and Countermeasures
SQER	Small Quantity Emissions Rate
STG	steam turbine generator
SWPP	Stormwater Pollution Prevention

tcf	trillion cubic feet
TESC	Temporary Erosion and Sedimentation Control
TMDL	Total Maximum Daily Load
tpy	tons per year
TransCanada	Alberta Natural Gas Pipeline
TSP	total suspended particulate
TSS	total suspended solids
TVI	television interference
UGA	Urban Growth Area
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VOC	volatile organic compounds
WAAQS	Washington Ambient Air Quality Standards
WAC	Washington Administrative Code
WDFW	Washington Department of Fish and Wildlife
WDNR	Washington Department of Natural Resources
WECC	Western Electricity Coordinating Council
WRIA	Water Resource Inventory Area
WRAT	Water Right Application Tracking
WSCC	Western System Coordinating Council
WSDOT	Washington State Department of Transportation
WUTC	Washington Utilities and Transportation Commission
WWTP	Birch Bay Wastewater Treatment Plant
ZID	Zone of Initial Dilution

1. INTRODUCTION TO VOLUME 2, RESPONSES TO COMMENTS

1.1 BACKGROUND

The Draft EIS for the BP Cherry Point Cogeneration Project was published on September 5, 2003. The comment period for the Draft EIS ended on October 27, 2003, which was 52 days after publication. During the comment period, a public comment meeting was held on October 1, 2003, at the Blaine Performing Arts Center in Blaine, Washington.

At the end of the comment period, the lead agencies had received a total of 315 comments made up of the following:

- 262 written comments from 25 agencies and organizations;
- 29 written comments from 11 citizens;
- 24 oral comments from 11 speakers at the public meeting (transcribed by a court reporter).

1.2 ORGANIZATION OF VOLUME 2

This volume contains the written comments received during the comment period, the transcript from the October 1, 2003, public meeting, and the corresponding responses to those comments, organized into the following three sections:

1. Introduction

- 2. General Responses to Comments on Major Issues.** Two issues were the subject of numerous written comments from individuals and agencies. To address these comments with a minimum of repetition and to provide a response that is meaningful to decision-makers, Volume 2 contains two general responses that encompass many commenters' concerns on each issue. These general responses are:

- A. Alternatives analysis
- B. Wetland impacts and mitigation

For each general response, we first summarized the issue and then responded to the commenters' concerns, incorporating new information from prefiled testimony, hearing testimony and examination, hearing exhibits, and Settlement Agreements.

- 3. Written and Oral Comments and Detailed Responses.** For each of the letters received during the comment period and for each speaker at the public meeting, EFSEC assigned an identification number in chronological order based on the date the comment was received or presented. Within each letter and transcript, comments are marked with a line and the corresponding comment number in the right-hand margin. In many cases, individuals have numerous comments addressing a variety of topics.

After each letter and transcript are the corresponding responses written by the EIS authors. The responses are numbered to match the comment numbers.

As described in WAC 197-11-560, possible options for responding to comments on a Draft EIS include modifying the alternatives or developing new alternatives, improving or modifying the analysis, making factual corrections, or explaining why the comments do not warrant further agency response. In this regard, for each comment within each letter or transcript, we:

- provide additional information or elaborate on a topic previously discussed in the Draft EIS;
- note how the EIS text has been revised to incorporate new information or factual corrections;
- refer the reader, when appropriate, to another comment response or one of the general responses to avoid repetition;
- explain why the comment does not warrant further response; or
- simply acknowledge the commenter when an opinion was stated.

1.3 REFERENCES CITED IN VOLUME 2

The responses in this volume reference the following types of documents:

- Documents that were submitted as exhibits by those who testified during the EFSEC Adjudicative Hearings or the Prevention of Significant Deterioration Permit Comment Meeting on the BP Cherry Point Cogeneration Project. A list of these exhibits is provided below.
- The written transcript of the Adjudicative Hearings. Flygare & Associates, Inc., a court reporter under contract to EFSEC, prepared the transcript.
- Documents contained in the appendices of the Final EIS (see Volume 1).
- Additional literature sources, which are listed below.

Adjudicative Hearing Exhibits (December 8, 9, 10, and 11, 2003)

- Exhibit 2.1 Preliminary Approval Notice of Construction and Prevention of Significant Deterioration, Permit No. EFSEC/2002-01. Includes Technical Support Document.
- Exhibit 3.0 State Waste Discharge Permit WA-ST-7441, Draft.
- Exhibit 3.1 Fact Sheet BP Cherry Point Cogeneration Project State Waste Discharge Permit WA-ST-7441.
- Exhibit 20.0. Applicant's Prefiled Direct Testimony, Witness Mark S. Moore. Includes Attachments 20.1 and 20.2.
- Exhibit 20R.0. Applicant's Prefiled Rebuttal Testimony, Witness Mark S. Moore.
- Exhibit 21.0. Applicant's Prefiled Direct Testimony, Witness Michael D. Torpey. Includes Attachments 21.1, 21.2, 21.3, and 21.4.
- Exhibit 21R.0. Applicant's Prefiled Rebuttal Testimony, Witness Michael D. Torpey.
- Exhibit 22.0. Applicant's Prefiled Direct Testimony, Witness Brian R. Phillips. Includes Attachments 22.1, 22.2, and 22.3.
- Exhibit 22R.0. Applicant's Prefiled Rebuttal Testimony, Witness Brian R. Phillips.

- Exhibit 23.0. Applicant's Prefiled Direct Testimony, Witness W. David Montgomery, Ph.D. Includes Attachments 23.1, 23.2, 23.3, and 23.4.
- Exhibit 24.0. Applicant's Prefiled Direct Testimony, Witness David M. Hessler, P.E. Includes Attachments 24.1, 24.2, 24.3, 24.4, and 24.5.
- Exhibit 24R.0. Applicant's Prefiled Rebuttal Testimony, Witness David M. Hessler, P.E. Includes Attachments 24.1, 24.2, 24.3, 24.4, 24.5, 24.6, and 24.7.
- Exhibit 25.0. Applicant's Prefiled Direct Testimony, Witness Thomas R. Anderson.
- Exhibit 26.0. Applicant's Prefiled Direct Testimony, Witness William P. Martin. Includes Attachments 26.1, 26.2, and 26.3.
- Exhibit 27.0. Applicant's Prefiled Direct Testimony, Witness Michael A. Kyte. Includes Attachment 27.1.
- Exhibit 27R.0. Applicant's Prefiled Rebuttal Testimony, Witness Michael A. Kyte.
- Exhibit 28.0. Applicant's Prefiled Direct Testimony, Witness A. David Every, Ph.D. Includes Attachments 28.1, 28.2, 28.3, 28.4, 28.5, and 28.6.
- Exhibit 28R.0. Applicant's Prefiled Rebuttal Testimony, Witness A. David Every.
- Exhibit 29.0. Applicant's Prefiled Direct Testimony, Witness James W. Litchfield. Includes Attachment 29.1.
- Exhibit 30R.0. Applicant's Prefiled Rebuttal Testimony, Witness Donald Davies, Ph.D. Includes Attachment 30R.1.
- Exhibit 31R.0. Applicant's Prefiled Rebuttal Testimony, Witness Ann M. Eissinger. Includes Attachment 31R.1.
- Exhibit 32R.0. Applicant's Prefiled Rebuttal Testimony, Witness Sanjeev R. Malushte, Ph.D., S.E., P.E. (Civil), P.E. (Mechanical), C. Eng., F.ASCE. Includes Attachment 32R.1.
- Exhibit 33R.0. Applicant's Prefiled Rebuttal Testimony, Witness Dennis R. Bays.
- Exhibit 34R.0. Applicant's Prefiled Rebuttal Testimony, Witness David H. Enger. Includes Attachment 34R.1.
- Exhibit 40.0. Whatcom County's Prefiled Testimony, Witness #40, Bill Elfo.
- Exhibit 41.0. Whatcom County's Prefiled Testimony, Witness #41, Neil Clement.
- Exhibit 42.0. Whatcom County's Prefiled Testimony, Witness #42, Dr. Kate Stenberg. Includes Attachment 42.1.
- Exhibit 43.0. Whatcom County's Prefiled Testimony, Witness #43, Douglas Goldthorp.
- Exhibit 44.0. Whatcom County's Prefiled Testimony, Witness #44, Hal Hart.
- Exhibit 45.0. Whatcom County's Prefiled Testimony, Witness #45, Paul Wierzba, Ph.D., P. Eng. Includes Attachments 45.1, 45.3, 45.4, and 45.5.
- Exhibit 46.0. Whatcom County's Prefiled Testimony, Witness #46, Rodney Vandersypen. Includes Attachment 46.1.
- Exhibit 47.0. Whatcom County's Prefiled Testimony, Witness #47, Kraig Olason.
- Exhibit 48.0. Whatcom County's Prefiled Testimony, Witness #48, Jane Koenig, Ph.D. Includes Attachments 48.1, 48.2, 48.3, 48.4, 48.5, 48.6, and 48.7.

Other Information Sources

BP West Coast Products, LLC. June 2002 (including April 2003 revisions). *BP Cherry Point Cogeneration Project, Application for Site Certification*. Application No. 2002-01. Part I, Compliance Summary; Part II, Environmental Report; and Part III, Technical

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Washington Department of Fish and Wildlife (WDFW). 2004a. Priority Habitats and Species Management Recommendations for Washington's Priority Species, Volume IV: Birds: Great Blue Heron. URL: <http://wdfw.wa.gov/hab/phs/vol4/gbheron.htm> (visited May 10, 2004).

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Washington State Department of Transportation (WSDOT). 2003. *Environmental Procedures Manual*. M31-11. Olympia, Washington.

Western Electricity Coordinating Council (WECC). September 2002, *10-Year Coordinated Plan Summary 2002-2011 Planning and Operation for Electric System Reliability*, p. 16.

Whatcom County. February 26, 2003a. *Birch Bay Community Plan (Draft)*. Not adopted. Whatcom County Planning and Development Services Department, Planning Division. Bellingham, Washington. URL: <http://www.smartgrowthbirchbay.org> (visited June 21, 2003).

2. GENERAL RESPONSES TO COMMENTS ON MAJOR ISSUES

A. ALTERNATIVE ANALYSIS

Issue Summary:

Some commenters requested additional information regarding alternative locations for the project as well as different project sizes.

Response:

The 404(b) 1 Alternatives Analysis established that the basic purpose and need of the cogeneration project is to provide a reliable and cost-effective supply of both steam and electricity to the BP Cherry Point Refinery and to provide electricity to the regional power grid.

The cogeneration project is not a water-dependent project. Therefore, alternative actions, alternative sites, and alternative site configurations were considered to determine if they could satisfy the project purpose and need, would be practicable, and would result in less wetland, and overall environmental, impact.

The Applicant has designed the cogeneration facility to occupy the smallest footprint area feasible, limited to 33 acres, and to affect the least amount of wetlands. There is no alternative configuration that would further reduce the wetlands impact and no other action that would satisfy all of the elements of purpose and need. The Alternatives Analysis defined the criteria for evaluating practicable alternative locations, based on cost, technology, and logistical limitations. Those criteria are size, proximity to the refinery, security, and accessibility.

Six potentially practicable sites were evaluated, including the proposed site. The six sites are described in more detail in the Alternatives Analysis included in Appendix A of this Final EIS. The proposed site is shown to be the one with the least wetland and overall environmental impact. The sites are compared in Table 1 below.

The criteria used to evaluate the six sites are described in Section 2.4.1 of the Draft EIS. Site 1 is the proposed project site.

Table 1: Comparison of Alternative Cogeneration Sites

Site	Size	Proximity to Refinery	Security	Accessibility	Wetland Impacts
1	Meets criterion	Meets criterion	Meets criterion	Meets criterion	12 acres
2	Meets criterion	Meets criterion	Meets criterion	Meets criterion	31 acres
3	Meets criterion	Meets criterion	Meets criterion	Meets criterion	33 acres
4	Meets criterion	Meets criterion	Meets criterion	Meets criterion	About 20 acres
5	Fails criterion	Meets criterion	Meets criterion	Meets criterion	2.5 acres
6	Meets criterion	Fails criterion	Fails criterion	Meets criterion	unknown

Laydown areas (material staging areas) are required for construction of the cogeneration facility and for permanent use by the refinery for maintenance activities called turnarounds. Alternative laydown sites must meet three criteria to serve the purpose and need: size, accessibility, and security. Costs would be similar for all sites so this factor was not taken into account when comparing sites. Technology is also not relevant in comparison of sites because no alternate electrical generating technology is available that would be applicable or be different on one site versus another. The cogeneration project requires construction laydown and staging areas 33 acres in size with easy accessibility to the construction site. The permanent laydown area for refinery use must be 22 acres.

In general, the same sites considered practicable for the cogeneration facility would also meet the key criteria for practicability for the laydown/turnaround areas. However, one site would be occupied by the cogeneration facility itself. The potentially practicable sites are compared in Table 2 below. Alternative A, the proposed site, is the site that has the least wetland and overall environmental impact and meets the practicability criteria and the purpose and need.

Table 2: Comparison of Alternative Laydown Area Sites

Site	Size	Security	Accessibility	Wetland Impacts
A	Meets criterion	Meets criterion	Meets criterion	19 acres
B	Meets criterion	Meets criterion	Meets criterion for cogeneration, not for refinery use	12 acres
C	Meets criterion	Meets criterion	Meets criterion for cogeneration, not for refinery use	31 acres
D	Meets criterion	Meets criterion	Meets criterion for cogeneration, not for refinery use	33 acres
E	Meets criterion	Fails criterion	Fails criterion	unknown

For both the cogeneration facility and the laydown areas, no combination of sites would satisfy the purpose and need and meet the practicability criteria.

The Alternatives Analysis demonstrated that no other practicable action, site, combination of sites, or site configuration would have less wetland impact or overall environmental impact and at the same time meet the purpose and need. Therefore, the proposed sites for the cogeneration project and the laydown/turnaround area meet the required tests of Clean Water Act Section 404 (b) 1 and Section 230.10(a) Guidelines for Implementing the Clean Water Act.

Also, the project size was developed to meet the following critical criteria:

- Reliability - Steam and power reliability are critical to the operation of the BP Refinery. A plant with three gas turbines and one steam turbine (3x1) provides this reliability because if one turbine is shut down for planned maintenance, two turbines would remain running. If one of the two remaining turbines shuts down inadvertently, only one turbine would be running. One gas turbine is sufficient to supply steam and electricity to the refinery.

- Efficiency - The newest turbines, which also happen to be the largest, are the most efficient available. Efficiency lowers the cost to produce electricity, reduces air emissions, reduces greenhouse gas emissions, and reduces fuel consumption per kilowatt hour of electricity produced.
- Economy of Scale - Within certain constraints, such as infrastructure, the incremental increase in size generally lowers the cost of construction and operation of the plant. For instance, smaller plants may cost less to construct, but their cost is not necessarily proportional to the output produced. A facility half the size does not cost half as much. To recover the cost of capital invested in the project, the plant must be of a sufficient size to lower the cost per kilowatt produced into a competitive range. Because private money is being used to finance the proposed project, investors must weigh risk versus return like any other investment.

B. WETLAND IMPACTS AND MITIGATION

Issue Summary:

Several commenters stated that the Draft EIS did not adequately describe the impacts on wetlands or the proposed mitigation plan.

Response:

The Wetland Mitigation Plan was prepared to provide mitigation for the wetland impacts associated with the proposed construction of the BP Cherry Point Cogeneration Project. Although the placement and design of the cogeneration project has avoided and minimized wetland impacts to the extent feasible, 4.86 acres of wetland will be temporarily disturbed and 30.51 acres of wetland will be permanently filled. The affected wetlands have been degraded over many decades of farming, road building, and industrial activity. In addition to the resulting changes in the vegetation and habitat, ditches and roads have redirected water flow from historical paths.

The mitigation plan proposes to restore in place the temporarily disturbed wetlands upon completion of construction activities that will occur in those areas. For the permanent wetland fill, compensatory mitigation is proposed.

Areas surrounding the impact site in the Terrell Creek drainage were screened for mitigation potential. The chosen sites were shown to be among the best sites available in the watershed for mitigation potential. They are on BP-owned land just north of Grandview Road across the road from the impact sites and total 110 acres in two land parcels. Those two parcels are located on each side of Blaine Road between Grandview Road and Terrell Creek. The eastern parcel is labeled Compensatory Mitigation Area (CMA) 1, and the western parcel is labeled CMA 2.

The mitigation areas are similar in overall character to the impact areas. They are mostly fallow fields dominated by non-native pasture grasses. More than 72% of the mitigation areas qualify as jurisdictional wetlands and are either seasonally inundated or seasonally saturated, drying out by late summer.

Functional assessments were conducted on the wetlands in the impact areas and the mitigation areas, and historical information was reviewed. The mitigation plan was designed to compensate for wetland functions that have been lost by restoring conditions prevalent before settlement and farming of the area took place. The most difficult functions to demonstrate compensation are the hydrological functions, and those became the central theme of the mitigation. The ditches that have been dug to drain farmland in the mitigation areas will be plugged and the water spread back into areas it historically occupied before farming activities changed it. In addition, to compensate for water that does not reach CMA 2 as it did before Grandview Road and Blaine Road and their roadside ditches were built, treated runoff water will be piped across them from the impact area so that it can flow in approximately historical pathways.

The other major focus of the mitigation is to restore native vegetation in patterns similar to what existed before the advent of farming in the area. This will be done by eradicating invasive species, primarily reed canarygrass and blackberries, and by planting native species. Historical maps indicate some areas in the project vicinity were freshwater marshes, probably associated with shrub-dominated habitat, but the majority of the area was probably forested. Remnants of unfarmed forest suggest that the dominant forests were probably mixed deciduous/coniferous tree species on hummocky terrain. In the mitigation planting plan, about 78% of the mitigation areas will be occupied by forest and shrub habitat, and grasses and sedges will dominate the remainder in herbaceous wetland and upland. The open areas in particular will have habitat structure, such as logs, included to provide habitat for small mammals and other wildlife species. Small seasonal ponds will be distributed throughout the sites to provide breeding areas for native amphibians. These ponds, however, are designed to dry up in late summer to prevent bullfrog reproduction. The mitigation area has been designed to maintain and improve equivalent habitat available for the great blue herons that nest in a nearby colony to the west.

Performance standards, monitoring, and contingency measures have been designed and approved by the regulatory agencies to ensure that the mitigation plan will succeed and will compensate for all the wetland impacts. Monitoring, which will occur for 10 years, will include hydrology, vegetation, and invasive species.